Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (Currently amended) A base station implementing physical layer automatic repeat request, including a transmitter and a receiver, the base station for receiving data in data blocks from a higher layer ARQ mechanism, the base station comprising:

a physical layer transmitter for receiving the data from the higher layer ARQ mechanism in data blocks, formatting the received data blocks into packets, the packets being smaller in size than the data blocks, each packet having a particular encoding/data modulation, appending the error check sequences, transmitting the packets, storing the packets for retransmission in a buffer memory incorporated into the transmitter, monitoring a return channel for receipt of an acknowledgment for each packet that the packet has been received, limiting the number of retransmissions to an operator-defined integer value, clearing the buffer memory after the integer value is reached, and retransmitting original or selectively modified packets in response to failure to receive a corresponding acknowledgment for a given packet;

an acknowledgment receiver for receiving the corresponding acknowledgment;

an adaptive modulation and coding controller for collecting retransmission statistics and adjusting the particular data encoding/modulation using the collected statistics;

a physical layer receiver for demodulating received packets;

a combiner/decoder for buffering, decoding and detecting packet errors; and

an acknowledgment generator for generating an acknowledgment for each packet if that packet has an acceptable error rate; and

wherein a physical layer ARQ mechanism comprising the physical layer transmitter and the acknowledgement receiver is transparent to the higher layer ARQ mechanism.

2. (Original) The base station of claim 1 wherein the particular encoding/data modulation is forward error correction (FEC).

3. (Original) The base station of claim 2 wherein the packets are transmitted using an orthogonal frequency division multiple access (OFDMA) air interface and the FEC encoding/data modulation adjusting is performed in addition to selective nulling of subchannels in an OFDMA set.

4.   (Original) The base station of claim 1 wherein the packets are transmitted using a single carrier having a frequency domain equalization (SC-FDE) air interface.

5.   (Original) The base station of claim 1 whereby the base station uses a code division multiple access (CDMA) air interface and wherein the acknowledgments are transmitted on a fast feedback channel.

6.   (Original) The base station of claim 1 whereby the acknowledgment generator transmits a negative acknowledgment if any packet has an unacceptable error rate.

7.   (Currently amended) Physical automatic request repeat apparatus employed by a base station, the physical automatic request repeat mechanism for receiving data in data blocks from a higher layer ARQ mechanism, the physical automatic repeat apparatus comprising:

a transmitter having:

means for receiving the data blocks from the higher layer ARQ mechanism;

means for formatting the received data blocks into packets for transmission, the packets being smaller in size than the data blocks, each packet having a particular encoding/data modulation;

<u>means for appending error check sequences;</u>

means for transmitting the packets;

means for storing the packets for retransmission in a buffer memory incorporated into the transmitter;

means for monitoring a return channel for receipt of an acknowledgment for each packet that the packet has been received;

means for limiting the number of retransmissions to an operator-defined integer value;

means for clearing the buffer memory after the integer value is reached;

means for retransmitting <u>an original or</u> a <u>selectively modified </u>packet, if an acknowledgment for that packet is not received;

means for collecting retransmission statistics; and

means for adjusting each particular data modulation using the collected retransmission statistics; and

a receiver having:

means for receiving packets;

means for decoding and error checking each received packet; and

means for generating an acknowledgment at the physical layer if that received packet has an acceptable error rate; and

wherein a physical layer ARQ mechanism comprising the means for retransmitting is transparent to the higher layer ARQ mechanism.

8. (Original) The base station apparatus of claim 7 wherein the particular encoding/data modulation is forward error correction (FEC).

9. (Original) The base station apparatus of claim 7 wherein the packets are transmitted using an orthogonal frequency division multiple access (OFDMA) air interface and the FEC encoding/data modulation adjusting is performed in addition to selective nulling of subchannels in an OFDMA set.

10. (Original) The base station apparatus of claim 7 wherein the packets are transmitted using a single carrier having frequency domain equalization (SC-FDE) air interface.

11. (Original) The base station apparatus of claim 7 wherein the acknowledgments are transmitted using a code division multiple access (CDMA) air interface on a fast feedback channel.

12. (Original) The base station apparatus of claim 7 whereby said whereby said means for generating generates a negative acknowledgment if a packet has an unacceptable error rate.

13-25. (Canceled).

26.   (New)   A base station implementing physical layer automatic repeat request, including a transmitter and a receiver, the base station for receiving data in data blocks from a higher layer ARQ mechanism, the base station comprising:

a physical layer transmitter for receiving the data from the higher layer ARQ mechanism in data blocks, formatting the received data blocks into packets, the packets being smaller in size than the data blocks, and each packet having a forward error correction (FEC) encoding/data modulation, appending the error check sequences, transmitting the packets, storing the packets for retransmission in a buffer memory incorporated into the transmitter, monitoring a return channel for receipt of an acknowledgment for each packet that the packet has been received, limiting the number of retransmissions to an operator-defined integer value, clearing the buffer memory after the integer value is reached, and retransmitting original or selectively modified packets in response to failure to receive a corresponding acknowledgment for a given packet;

an acknowledgment receiver for receiving the corresponding acknowledgment;

an adaptive modulation and coding controller for collecting retransmission statistics, adjusting the particular data encoding/modulation using the collected statistics, and varying subchannels used for transmission of the packets;

a physical layer receiver for demodulating received packets;

a combiner/decoder for buffering, decoding and detecting packet errors; and

an acknowledgment generator for generating an acknowledgment for each packet if that packet has an acceptable error rate; and

wherein a physical layer ARQ mechanism comprising the physical layer transmitter and the acknowledgement receiver is transparent to the higher layer ARQ mechanism.

27. (New) Physical automatic request repeat apparatus employed by a base station, the physical automatic request repeat mechanism for receiving data in data blocks from a higher layer ARQ mechanism, the physical automatic repeat apparatus comprising:

a transmitter having:

means for receiving the data blocks from the higher layer ARQ mechanism;

means for formatting the received data blocks into packets for transmission, the packets being smaller in size than the data blocks, and each packet having a forward error correction (FEC) encoding/data modulation;

means for appending error check sequences;

means for transmitting the packets;

means for storing the packets for retransmission in a buffer memory incorporated into the transmitter;

means for monitoring a return channel for receipt of an acknowledgment for each packet that the packet has been received;

means for limiting the number of retransmissions to an operator-defined integer value;

means for clearing the buffer memory after the integer value is reached;

means for retransmitting an original or a selectively modified packet, if an acknowledgment for that packet is not received;

means for collecting retransmission statistics; and

means for adjusting each particular data modulation using the collected retransmission statistics;

means for varying subchannels used for transmitting the packets; and

a receiver having:

means for receiving packets;

means for decoding and error checking each received packet; and

means for generating an acknowledgment at the physical layer if that received packet has an acceptable error rate; and

wherein a physical layer ARQ mechanism comprising the means for retransmitting is transparent to the higher layer ARQ mechanism.